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ABSTRACT

This paper reports the application of factor analysis of a large data matrix involving some 800 variables in determining the principal dimension of teacher characteristics and employs the resulting scales in testing hypotheses about similarities and differences in teacher characteristics across subcultures identified by national/racial lineage, sex, and grade or level of students taught. Data derived from the author's earlier Teacher Characteristics Study (1948-54) based on about 400 teachers in Hawaii and presented in relation to the following characteristics: 1) considerate, kindly behavior; 2) businesslike, task-oriented behavior; 3) stimulating, motivating, imaginative behavior; 4) favorable attitudes toward pupils, school personnel, and parents; 5) academic educational viewpoints; 6) child-centered viewpoints; 7) verbal-semantic facility; 8) general personal-social adjustment; 9) commitment to teaching as a profession; 10) participation in teaching-related activities; and 11) response validity. The data for each characteristic are examined in detail, but no attempt is made to explain similarities or differences. The scales simply describe the characteristics which emerge from analyses of teachers' reports of what they do, what they prefer, how they think they would act, or how they think other teachers would act under specified circumstances, and what opinions and values they agree and disagree with. (MBM)

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EXPLORATORY CROSS CULTURAL DESCRIPTIONS OF SELF-REPORT INVENTORY DATA DERIVED FROM TEACHER CHARACTERISTICS SCHEDULE (REVISED FORM G-70) DATA PROVIDED BY A SAMPLE OF HAWAII TEACHERS
and
SOME METHODOLOGICAL CONSIDERATIONS IN THE CONDUCT OF INVESTIGATIONS THAT ATTEMPT TO DESCRIBE SIMILARITIES AND DIFFERENCES ACROSS CULTURAL GROUPS OR OTHER DISTINGUISHABLE SAMPLES OF PERSONS

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SUMMARY

One major purpose of this paper is necessarily dual in nature: (a) to report the application of a methodology (factor analysis of a large data matrix involving some 800 variables) in determining the principal dimensions of teacher characteristics generated by self-report inventory responses that had been developed to reflect preferences, opinions (attitudes), beliefs, judgments about classroom activities and behaviors, and related personal-social characteristics of teachers, and (b) to employ resulting scales, reflecting major dimensions of teacher characteristics, in testing hypotheses about similarities and differences in "teacher characteristics" across certain subcultures of teachers, namely subcultures identified by national/racial lineage, sex, and grade or level of students taught.

In Hawaii, although Western and Pacific cultures have been blended and intermixed, there remains a unique opportunity for describing possible similarities and differences across subcultures that represent some degree of vestigial linguistic and cultural characteristics of different national and racial populations. For example, school teachers in Honolulu represent, in part, second and third generation Japanese, Chinese, and other Pacific populations--groups in which certain national traditions are often still carried-over in family life, although usually combined with an overlay of contemporary urban American culture. Hawaii's teachers also consist, in part, of "continental U.S.A. born" and of "Hawaii born" Caucasians whose linage ultimately is traceable to nations of Western Europe.

Data based on slightly less than 400 Hawaii teachers (41% Japanese American, 19% Chinese American, 32% Caucasian, or "European" American (insofar as remote lineage is concerned) and 8% native Hawaiian American; approximately 81% female and 19% male. 51% teachers of elementary grades, 19% teachers of intermediate--Grades 7, 8, 9,--, and 30% high school teachers) are here presented with respect to a number of characteristics of teachers:

Considerate, kindly behavior orientation;

Businesslike, task-oriented behavior orientation;

Stimulating, motivating, imaginative behavior orientation;

Favorable attitudes toward pupils, school personnel, and parents;

"Academic" centered educational viewpoints;

Child-centered educational viewpoints;

Verbal-semantic facility in the language which instruction is conducted, i.e., English, as used in the U.S.A.;

General "personal-social" adjustment;

Commitment to teaching as a profession, i.e., professional involvement;

Participation in teaching-related activities;

Response validity.

The data were derived from an updated form of the Teacher Characteristics Schedule, Form G 70, a revision of the Teacher Characteristics Schedule developed by Ryans for the Teacher Characteristics Study in 1948-54 (a project sponsored by The Grant Foundation and the American Council on Education. (See Appendix A for a brief description of that work.)

Neither the original Teacher Characteristics Schedule nor the current revision presume to assess teacher effectiveness. Certain Schedule scales may reflect aspects of competency that a teacher education program, school, or community believes important, but the scales, as such, simply describe certain distinguishable aspects of an individual's personality, as inferred from responses of teachers to a self-report type inventory.

In sampling the teachers of Hawaii, the 1970-71 Educational Directory, published by the State Department of Education, was used as the sampling frame. As a matter of convenience, it was arbitrarily decided to limit the sample to the more populous island of Oahu (over 76% of the State's certified personnel teach here); more properly, therefore, the original sample was of Oahu, Hawaii teachers.

The original (invited) sample (a stratified random sample) was constituted of 39% Japanese American, 33% Caucasian (Western European origin) American, 18% Chinese American, and 10% Hawaiian American. Of those who were invited to participate (by individual letter to each) 49% agreed to complete the Teacher Characteristics Schedule. Of these respondents: 19% were males and 81% females, 51% were elementary teachers, 19% intermediate grade teachers, and 30% high school teachers; 41% were Japanese American, 32% Caucasian (Western European origin) American, 19% Chinese American, and 8% Hawaiian American.

As noted, many of the originally selected sample did not choose to participate. Strictly speaking, the sample on which the data are based consists of those of Oahu teachers originally selected as noted in the preceding paragraph who were willing to complete the Schedule.

Similarities and differences in mean score on each of the "dimensions" of teacher characteristics were analyzed with respect to the obtained samples of the several subcultures.

The reliabilities of the scales used for comparisons were relatively high: two were in the low .70's; five in the high .70's; three were in the .80's; one attained .91.

(When the empirical equivalent of a second-order factor analysis was accomplished, the teachers' scores on the scales appeared capable of further reduction to: (1) a factor describing the teacher-committed, friendly teacher, who relates well to children and others in the school, who is comfortable and adjusts well re personal-social relationships, and who participates in intellectual and cultural activities; (2) a factor describing the stimulating, motivating teacher, who possesses considerable originality and verbal-semantic facility, who participates in activities teachers often engage-in, and who appears to be flexible or permissive; (3) a factor describing the businesslike, task oriented, academic oriented teacher; and (4) a factor that is not particularly relevant to teacher characteristics per se, but is more useful as a "control," namely a factor relating to "validity of response."

The similarities and differences among the data analyzed re means of the subcultures studied are summarized below.

Sex.

There were no significant differences between men and women teachers with regard to: considerate, sympathetic behavior; business-like, task-oriented behavior; stimulating, motivating behavior; favorable attitudes toward students, school personnel and parents; academic-centered

educational viewpoints, non-directive, permissive educational viewpoints; commitment to teaching; participation in teaching-related intellectual, cultural and community activities, or, validity of response.

On the scale estimating verbal-semantic facility in language of instruction (English), women teachers consistently attained higher mean scores than did men; the differences were statistically significant. On the scale estimating general personal-social adjustment the mean scores of men teachers were significantly and consistently higher than the mean scores of women teachers.

Grade Level of Students Taught.

No statistically significant differences were found for elementary, grade 7-8-9, and high school teachers with regard to: favorable attitudes toward students and others contacted in schools; academic-centered educational viewpoints; general personal-social adjustment; commitment or dedication to teaching; or validity of response.

Mean scores of elementary teachers were significantly higher than those of teachers of other levels for: considerate, warm, sympathetic behavior; and also for non-directive, permissive viewpoints. The mean scores of high school teachers were significantly higher (with elementary teacher mean scores usually lowest) with regard to: organized, task oriented behavior; stimulating, motivating behavior; verbal-semantic facility in language of instruction; and participation in teaching-related cultural, community, and similar type activities.

Lineage or Ethnic Group.

No statistically significant differences were observed from analyses of the mean scores of the "lineage" groups compared for:

considerate, warm, sympathetic behavior; directive, academic-centered educational viewpoints; non-directive, permissive viewpoints; general personal-social adjustment; commitment to teaching; or validity of response.

The mean scores of teachers of Japanese American lineage (followed closely by Chinese American and Hawaiian American) were significantly higher, and Caucasian mean scores lowest, with regard to organized, task-oriented behavior; and also favorable attitudes toward pupils and persons contacted in school. Caucasian (European lineage) teachers had significantly higher mean scores for stimulating, motivating behavior; and for verbal-semantic facility in language used in instruction. Hawaiian American teachers (when four lineage groups were compared) had a significantly higher mean score on the scale estimating participation in teaching-related activities.

Interaction Data.

Japanese American males showed a significantly higher mean score and Caucasian males the lowest mean score re organized, task-oriented behavior. Caucasian males attained a significantly higher mean score and Japanese American males the lowest mean score re stimulating, motivating behavior. On the non-directive, permissive viewpoints scale, Caucasian males attained the higher mean score, followed by Japanese American females, Caucasian females, and Japanese American males. Hawaiian American women teachers attained the highest mean score and Japanese American women teachers the lowest re general personal-social adjustment.

In general, there were few (only those noted above) statistically significant interactions revealed among the mean scores on the teacher characteristic scales of combinations of groupings by sex, "grade level taught," and lineage or ethnic group.

The obtained similarities and differences on the scales of the Teacher Characteristics Schedule are presented as the results yielded by the sample of teachers in schools in Oahu, Hawaii who were willing to complete the materials (i.e., respond to the items of the Teacher Characteristics Schedule). As noted earlier, the extent to which samples and responses made by samples are representative of the populations to which they belong can only be a matter of conjecture. Behavioral data must always be based upon (a) ability and (b) willingness to participate. It cannot be known how persons who did not participate would have responded, and the extent to which their behavior/responses would have been like or unlike the data obtained from those who did participate.

It may also be noted that no attempt is made in this report to try to "explain" similarities or differences. Many hypotheses offering possible explanations may suggest themselves to a reader. But evidence of antecedent-consequent relationships is not available.

Finally, it must be recalled that the scales of the Teacher Characteristics Schedule make no pretense of trying to define effective teachers. The scales simply describe certain characteristics of teachers of the current day as those characteristics emerge from analyses of teachers' reports of what they do, what they prefer, how they think

they would act or how they think other teachers would act under specified circumstances, what opinions and what values they agree or disagree with, etc.

With regard to "effective teaching" the same point of view was adopted as in the original Teacher Characteristics Study, i.e., that what is referred to as effective teaching varies so greatly from one community to another, or even one teacher education program to another, that efforts to determine "universals" that relate to teacher effectiveness should be viewed with great caution. The point of view adopted here is simply that the Teacher Characteristics Schedule provides estimates of some of the dimensions of behavioral and attitudinal responses of teachers that relate to objectives sometimes adopted by teacher education programs and by schools--objectives that persons belonging to one or another group may associate with effective teaching. If a teacher education program espouses objectives that place a premium upon pupil-centered viewpoints, or warm, sympathizing teacher behavior, some of the Schedule scales provide estimates of such characteristics. If another teaching program places emphasis upon an academic-centered set of educational viewpoints, upon task-oriented teaching behavior, etc., some of the scales tap these areas.

EXPLORATORY CROSS CULTURAL DESCRIPTIONS OF SELF-REPORT INVENTORY DATA DERIVED FROM TEACHER CHARACTERISTICS SCHEDULE (REVISED FORM G-70) DATA PROVIDED BY A SAMPLE OF HAWAII TEACHERS and SOME METHODOLOGICAL CONSIDERATIONS IN THE CONDUCT OF INVESTIGATIONS THAT ATTEMPT TO DESCRIBE SIMILARITIES AND DIFFERENCES ACROSS CULTURAL GROUPS OR OTHER DISTINGUISHABLE SAMPLES OF PERSONS*

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The original purposes of this paper were three: first, to present some exploratory data obtained from verbal self-report inventory responses developed to reflect behavioral, attitudinal, belief, and related personal dimensions manifested by subcultures of teachers (subcultures identified here with respect to national and racial lineage, sex, and grade or level of pupils taught); second, to suggest a few of the methodological considerations and conditions that should be optimized in the conduct of investigations that attempt to describe similarities and differences across cultures and subcultures with regard to personal-social characteristics; and third, to suggest the possibility of educators and psychologists representing different national cultures developing a cooperative and collaborative plan for extensive international investigation of personal and social characteristics of one of the world's most influential professional groups, teachers.

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*Based on materials prepared for the XVIIth International Congress of Applied Psychology's Symposium on "International and Intercultural Similarities and Differences in Personality Traits," July 26, 1971, Liege, Belgium.

Some Similarities and Differences Across Subcultures of Teachers.

In Hawaii, although Western and Pacific cultures have been blended and intermixed, there remains a unique opportunity for describing possible similarities and differences across subcultures that represent some degree of vestigial linguistic and cultural characteristics of different national and racial populations. For example, school teachers in Honolulu represent, in part, second and third generation Japanese, Chinese, and other Pacific populations--groups in which certain national traditions are often still carried-over in family life, although usually combined with an overlay of contemporary urban American culture. Hawaii's teachers also consist, in part, of "continental U.S.A. born" and of "Hawaii born" Caucasians whose lineage ultimately is traceable to nations of Western Europe.

Data based on slightly less than 400 Hawaii teachers (41% Japanese American, 19% Chinese American, 32% Caucasian, or "European" American (insofar as remote lineage is concerned) and 8% native Hawaiian American; approximately 81% female and 19% male. 51% teachers of elementary grades, 19% teachers of intermediate--Grades 7, 8, 9,--, and 30% high school teachers) are here presented with respect to a number of characteristics of teachers:

Considerate, kindly behavior orientation;

Businesslike, task-oriented behavior orientation;

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Favorable attitudes toward pupils, school personnel, and parents;

"Academic" centered educational viewpoints;

Child-centered educational viewpoints;

Verbal-semantic facility in the language which instruction is conducted, i.e., English, as used in the U.S.A.;

General "personal-social" adjustment;

Commitment to teaching as a profession, i.e., professional involvement;

Participation in teaching-related activities;

Response validity.

The data were derived from an updated form of the Teacher Characteristics Schedule (1970). Scoring scales for the inventory, the Teacher Characteristics Schedule, were generated from large scale factor analyses (e.g., > 800 x 800 variable matrices, in which each self-report response represented a variable). (Interestingly, the Teacher Characteristics Schedule factor scales that were extracted in this study matched quite well several dimensions reflected by earlier (1948-54) externally validated scales developed in connection with Ryans' original Teacher Characteristics Study.) The obtained results are probably of principal interest for hypothesis generation and as an illustration of the application of "large variable" factor analysis of inventory responses.[1]

Four major concerns guided the effort reported here.

1. One concern was the updating of the materials comprising the Teacher Characteristics Schedule (originally developed in the early

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1. Employing techniques conceived by Dr. Paul Horst and adopted to the present project by Dr. Horst in the capacity of consultant to the Education Research and Development Center.

1950's),[2] administering the revised instrument to a sample of teachers in Hawaii, factor analyzing the responses of participating teachers, developing scoring keys for the scales generated by the factor analyses, and obtaining the score of each teacher on each scale. (In a real sense, this phase was partly one of hypothesis testing to determine the extent to which scales thus derived might correspond to those that emerged from the 1948-1954 Teacher Characteristics Study.)

2. A second concern had to do with determining the reliabilities of the scales generated by factor analysis of Teacher Characteristics Schedule responses.

3. Since there had been clear indication that the original (circa 1954) scales were intercorrelated (and although there is sufficient educational justification for scoring each scale separately), a third concern was with further factor analyzing the several scale scores of the teachers to describe the intercorrelationships among the scales and the extent to which several scales might form a statistically identifiable set.

4. The fourth concern is probably the one of most direct interest from the standpoint of many educators and psychologists, namely, testing hypotheses about similarities and differences in "characteristics" across different subcultures of teachers as such characteristics are inferred from the scales reflected by teachers' responses to the Teacher Characteristics Schedule.

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2. The Teacher Characteristics Schedule has been further revised (Form G-70/2) since the project here reported and over 3,000 teachers from a stratified random sample of U.S.A. teachers have participated as respondents.

The Teacher Characteristics Schedule

At the outset, it is necessary to describe the Teacher Characteristics Schedule, what it purports to estimate, and the sample of teachers whose responses contributed to the scales that appeared to be reflected by the instrument.

The original Teacher Characteristics Schedule was produced in the early 1950's in keeping with one of the major purposes of The Grant Foundation/American Council on Education sponsored Teacher Characteristics Study.

Neither the original Teacher Characteristics Schedule nor the current revision presume to assess teacher effectiveness. Certain Schedule scales may reflect aspects of competency that a teacher education program, school, or community believes important, but the scales, as such, simply describe certain distinguishable aspects of an individual's personality, as inferred from responses of teachers to a self-report type inventory.

To understand the assumptions underlying the revised (1970) Teacher Characteristics Schedule, some acquaintance with the Teacher Characteristics Study (1948-54) and the original Teacher Characteristics Schedule is desirable. (The Study is described in detail in D. G. Ryans, Characteristics of Teachers, American Council on Education, 1960.) A short description of the overall Study and development of the original Schedule is provided in Appendix A to this report.

The updated form of the Teacher Characteristics Schedule administered to Hawaii teachers (Revised Form G-70)[3] embraced 549 possible "preference" and "self-describing" responses (202 items), 90 possible "activities" responses (20 items), and 147 possible "status-biographical" responses (38 items). Choice of one and only one response was permitted to each of the "preference" and "status-biographical" items; but as many responses as seemed applicable to the responding teacher were permitted for the 20 "activities" items (90 possible responses).

The Teacher Characteristics Schedule is a "forced choice" type of inventory that (a) limits the teacher's response to choices given in the printed booklet, i.e., it is not a free-response instrument, nor does the format permit "qualification" of response, and (b) "forces" or "requires" the respondent to accept the particular context of an item and choose from the listed choices. This procedure has both advantageous and disadvantageous features. In general, from the standpoint of control of conditions and identification of patterns of responses the advantages outweigh the disadvantages. (Admittedly, however, it is not "satisfying" to some persons who sincerely feel they must express qualifying and individual viewpoints.) The following two examples indicate the general character of the Schedule materials.

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3. A still later revision, Revised Form G-70/2, has been developed and administered to a national sample of over 3,000 teachers. Revised Form G-70/2 embraces 630 "preference" "self-describing" responses (242 items), 90 "activities" responses (20 items), 300 "life views" responses (150 items), and 164 "status-biographical" responses (38 items).

Which one of the following do you think most suggests a <u>poor</u> class?

1. Students who are listless or conform apathetically.
2. Disorderliness and noise.
3. Students who are dependent and rely on the teacher for directions and suggestions.

Which of the following words would you most like to know someone used in describing you?

1. Pleasant
2. Resourceful
3. Enthusiastic
4. Thorough

In sampling the Hawaii teachers, the 1970-71 Educational Directory, published by the State Department of Education was used as the sampling frame. As a matter of convenience, it was arbitrarily decided to limit the sample to the more populous island of Oahu (over 76% of the State's certified personnel teach here); more properly, therefore, the original sample was of Oahu, Hawaii teachers. It also was arbitrarily decided to sample males and females in proportion to their representation among the teachers, to sample elementary and secondary (secondary, including for sampling purposes intermediate teachers of grades 7, 8, and 9) teachers equally, and to limit, insofar as could be identified from the Directory, the study to only the four larger ethnic groups of teachers, Japanese American, Caucasian (Western European remote ancestry) American, Chinese American, and native or part-native Hawaiian American. (Surnames were the only available guide to possible national lineage at the time of sampling; the fallibility of this procedure in the case of women and children of mixed marriages was recognized.) The ethnic groups,

identifiable by surname were randomly selected in proportion to representation of each judged lineage group in the total teacher population, except in the case of teachers of Hawaiian heritage where the number was so small that all available teachers in this group were asked to participate.

The original (invited) sample was constituted of 39% Japanese American, 33% Caucasian (Western European origin) American, 18% Chinese American, and 10% Hawaiian American. Of those who were invited to participate (by individual letter to each) 49% agreed to complete the Teacher Characteristics Schedule. Of these respondents: 19% were males and 81% females, 51% were elementary teachers, 19% intermediate grade teachers, and 30% high school teachers; 41% were Japanese American, 32% Caucasian (Western European origin) American, 19% Chinese American, and 8% Hawaiian American.

As noted, many of the originally selected sample did not choose to participate. Strictly speaking, the sample on which the data are based consists of those of Oahu teachers originally selected as noted in the preceding paragraph who were willing to complete the Schedule.

If there were any means of knowing the responses of non-respondents, it is possible one might find that, as a group, teachers in the same areas, of same sex, teaching similar grades or subjects who did not choose to participate might respond differently from those from whom data were received. As in all behavioral research, results can be known only for those persons who are (a) able to respond to the situations in which they are observed, and (b) willing to respond as completely as they can in accord with directions. Even when an

original sampling has been carefully planned, the results can suffer from sampling bias of this sort. One never actually knows the answer; certain approaches may permit some "guesses," but the facts remain inaccessible.

Derivation of Scales and Scoring Keys

The responses of the total sample of respondents was factor analyzed (a 413 respondent x 801 variable data matrix; a total of 801 responses were marked by the responding members of the four ethnic groups---a small number of teachers of lineage other than from the four groups originally selected responded). The factor analytic procedure employed was one of Horst[4] adapted by Dr. Paul Horst, EDRAD consultant, and Mr. Robert Bloedon, EDRAD programmer, for the use with the computing system available at the University of Hawaii.

A number of factor analyses were carried out. Some of these involved separate analyses for elementary teachers and for secondary teachers; others were for Japanese American teachers separately, Caucasian (Western European origin) teachers, Chinese American teachers. In most of these analyses the number of respondents was too small to assure highly useable factors. The factor analytic data to be reported

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4. Paul Horst, Measurement of Personality Dimensions, (ONR Contract Nonr-477 (33) and Public Health Research Grant MH00743-10), Seattle Washington, University of Washington, 1966. (In a "Foreword," Horst writes: "These reports are based on a new method for factoring a data matrix of order up to 3000 x 3000. The method is applicable to data matrices in general and should have applications in a wide range of multivariate analysis and prediction problems. The reports are specifically oriented toward the use of the techniques in the measurement of personality dimensions." Horst goes on to comment that work in this area undoubtedly has suffered heavily because "adequate techniques were not available for analysis of very large data matrices."

here are for the total group of 413 cases. A variety of solutions was attempted on this total sample, primarily to make possible empirical comparisons of analyses of the same data. Very large numbers of iterations (up to 200) were completed in some solutions, small numbers in others. As many as 50 factors were extracted and as few as 10. Extraction of 25 factors was judged the most satisfactory solution. Eigen root values held up well even with large numbers of factors.

Varimax rotation followed the principal axis solution of the factors extracted, and 11 factors seemed generally meaningful and accounted for a substantial proportion of the variance. It is believed that the responses of the teachers in this sample can be fairly adequately described by the factors that follow:

X--considerate, kindly, good-natured (humanistic) teacher behavior

Y--businesslike, thorough, task-oriented teacher behavior

Z--stimulating, motivating, imaginative teacher behavior

R--favorable attitudes toward pupils, school personnel, parents

AV--educational viewpoints approving teacher-directed, "academic-centered" school activities

PV--non-directive, unstructured, permissive educational viewpoints

VS--verbal-semantic facility re national language in which instruction is conducted

SPA--general personal and/or social adjustment

TC--teaching commitment and/or dedication; professional involvement

TA--participation in teaching-related activities. (A general factor that may have to do with acquiescence with respect to

intellectual, cultural, and educational activities teachers generally are expected to be interested in)

For a response to be associated with a particular factor, a factor loading of at least .30 was required. The number of responses with positive loadings of .30 or higher were: X = 25; Y = 19; Z = 29; R = 22; AV = 22; PV = 19; VS = 12; A = 13; V = 16; TC = 15; TA = 54.

It was of more than casual interest to note the similarity of the factors extracted from the factor analysis of teachers self-report inventory responses (the present study) and the scales or factors resulting from the original Study which employed a different approach (see Appendix A). In the original work in 1948-1954 the factors X, Y, and Z were first identified from assessments of teacher classroom behavior made by trained observers and Teacher Characteristics Schedule responses had been selected by correlation with the external criteria supplied by those assessments. X, Y, and Z (particularly Y and Z) now stand out from the factor analysis of teacher responses. In the original work R, R_1, and Q (having to do with attitudes toward pupils, democratic classroom practices, and administrators and parents) were very highly intercorrelated; the intercorrelations were as high as the reliability coefficients. In the current instance such attitudes form a single factor, R. In the original work "academic," traditional viewpoints and "permissive, child-centered" viewpoints formed opposite poles of the B scale. In the current case AV and PV could be considered opposite poles of the same dimension or two separate inversely related scales. VS, SPA, and V of the present factor analysis appear to be identical in meaning with I, S, and V of the 1950's effort.

The major differences in the 1970 Hawaii teacher data are in the emergence of the factor TC (that we have called "teacher commitment") (Richard Turner has regarded this as an important dimension of teacher behavior, it was also suggested in some exploratory work by the present writer in s small study conducted in connection with the National Teacher Examinations in 1946-47) and the A or TA factor which is contributed to heavily by the "activities" responses of the Schedule.

Following the factor analyses and identification of the 11 factors, still another step was taken in developing "scoring keys" for the 11 factors.

Each respondent's Teacher Characteristics Schedule responses were scored, using the responses that loaded .30 or higher, on each of the 11 factors; eleven "tentative scores" thus became available for each participant--a "tentative score" for each factor. Next, item analysis, or response analysis, was conducted for each scale, obtaining the correlation between each of the 801 responses and the "tentative score" on each of the 11 factors. Final scoring keys were developed for each scale by selecting as a "scorable response" each response that (1) was accepted by $\geq .05$ and $\geq .95$ of the respondents and (2) correlated with the criterion (tentative score) at a significance level of .01.

Both + and - keys were obtained for each scale (although data to be reported later will be for the + scores only re X, Y, Z,...).

The numbers of scorable responses for each scale, together with means and standard deviations for the total group of respondents (Hawaii teachers), are shown in Table 1 following.

Table 1

Number of Scored Responses for each Scale and Sample Mean and Standard Deviation of each Scale, Based on 413 Hawaii Teachers Responding to Revised Form G of the Teacher Characteristics Schedule

TCS Scale	Number of Scored Responses; Possible Score on Scale	Mean	Standard Deviation
Positive (+) Scale*			
X	43	19.64	5.57
Y	42	15.09	5.68
Z	70	29.48	8.62
R	51	31.84	6.89
AV	43	15.14	5.35
PV	52	27.12	6.69
VS	48	24.06	6.42
SPA	35	17.15	5.38
TC	50	25.02	7.31
TA	58	22.57	10.73
V	35	19.46	4.67
Negative (-) Scale			
X	30	8.63	3.27
Y	31	11.35	3.99
Z	28	9.26	3.31
R**	---	--	--
AV**	--	---	--
PV**	--	--	--
VS	18	4.14	2.14
SPA	25	10.75	4.04
TC	26	7.48	3.80
TA**	---	--	--
V	22	6.75	3.37

*Only scores on the "Positive Scale" for the 11 dimensions were used in analyses to be reported later. (For the seven scales for which "Negative Scale Scores" and "Positive Minus Negative Scores" were computed, the part-whole correlations of "Positive Sccres" with "Positive Minus Negative Scores" were .97, .96, .98, .98, .96, .97, and .96 for X, Y, Z, VS, SPA, TC, and V, respectively.)

**No "Negative Scale" was developed for four dimensions, R, AV, PV, TA.

Table 1 (Cont.)

Number of Scored Responses for each Scale and Sample Mean and Standard Deviation of each Scale, Based on 413 Hawaii Teachers Responding to Revised Form G of the Teacher Characteristics Schedule

TCS Scale	Number of Scored Responses; Possible Score on Scale	Mean	Standard Deviation
Positive less Negative $(\Sigma+) - (\Sigma-) + 40$			
X	53	51.00	8.36
Y	51	43.74	9.08
Z	82	60.22	11.29
VS	70	59.91	7.99
SPA	50	46.40	8.95
TC	64	57.54	10.44
V	53	52.71	7.56

Reliabilities of the Scales

Kuder-Richard Formula 20 reliability coefficients were computed for the "Positive Score" for all scales and the "Negative Score" for X, Y, Z, R, VS, PSA, TC, and V. The "Positive Score" reliabilities ranged from .91 to .71 with a median reliability of .79; Negative Score reliability coefficients were low and ranged from .73 to .40 with a median reliability of .64. K-R Formula 21 was used to compute "Positive Score minus Negative Score" estimates of reliability for X, Y, Z, VS, PSA, TC, and V; these ranged from .85 to .77 with a median of .83. ("Positive minus Negative" scores and reliabilities were not computed for R, AV, PV, and TA because in the case of the R scale and the TA scale the "Positive Score" reliabilities alone were relatively high, .81 and .91; the "Positive minus Negative" reliability was not computed for AV or PV since these may be thought of as opposite poles of the same characteristic.

The correlation of "Positive Score" with "Negative Score" on a particular scale constitute of form of reliability; for these correlations the values ranged from .88 to .66 with a median value of .77.

The obtained reliability values are given for each scale in Table II.

Table II

Reliability Coefficients Obtained for Scales of the Teacher Characteristics Schedule re 413 Hawaii Teachers

TCS Scale	Positive Score Reliability (K-R 20)	Negative Score Reliability (K-R 20)	Positive Score Minus Negative Score Reliability (K-R 21)	Positive Score Correlated with Negative Score Reliability (Product Moment r)
X	.72	.52	.78	.78
Y	.77	.64	.83	.76
Z	.81	.54	.83	.74
R	.81	--	--	--
AV	.76	--	--	}.88
PV	.79	--	--	
VS	.78	.40	.77	.66
PSA	.78	.73	.83	.81
TC	.83	.70	.85	.74
TA	.91	--	--	--
V	.71	.68	.77	.76

The scales were judged to be sufficiently reliable for group comparisons. In making any inferences about individual scores it should be noted that the standard errors of measurement are generally around 3 points for the Positive Scores, e.g., X = 2.9, Y = 2.7, Z = 3.7, R = 3.0, VS = 3.0, TC = 3.0, V = 2.5.

Interrelationships Among the Scores
Derived from the Teacher Characteristics Schedule G-70

Although orthogonal solutions were used in the large-scale factor analyses of Teacher Characteristics Schedule Responses (leading to the scales noted earlier), after the score of each teacher on each scale had been determined the 11 sets of scores (11 variables where each scorable scale represented a variable) were factor analyzed to determine the higher order factors that might emerge (i.e., the ways in which certain scales might be more similar to some other scales and less similar to others).

Four analyses, with varimax rotation, were attempted. Three factors were extracted in 1 analysis, 4 in another, 5 in another, and 6 in another. The Eigen roots were substantial (e.g., 7.61 for first factor, 6.35 second, 3.55 third, 2.01 fourth, and 1.01 and 1.00 for fifth and sixth respectively. 73% of the total variance was accounted for by extracting 3 factors, 79% in the case of 4 factors, 82% re 5 factors, and 85% re 6 factors.

The factors remained fairly constant throughout the 3, 4, 5, and 6 factor solutions (e.g., TC, R, and SPA dominated Factor I, Z and VS dominated Factor II, and Y and AV seemed to hold together rather well for a Factor III. However, V (validity of response) showed a high negative loading (-.62) on Factor I in the 3 factor solution, but came out as a separate factor in the 4, 5, and 6 factor solutions (with very small and insignificant negative loading on Factor I and small and insignificant positive loadings on Factors II and III.)

In the 5 factor solution, Y emerged as a separate factor by itself (.52 loading) and also on a factor (similar to the factor

consisting of Y and AV in the 3 and 4 factor solutions) contributed to by Y (.32) and AV (.82). This "splitting" of Y also occurred in the 6 factor solution, and, in addition a very difficult to interpret negative sixth factor consisting of -VS emerged.

The choice seems to be between the factor analyses where (a) 4 factors and (b) 5 factors were extracted.

These solutions and contributing factor loadings are shown in Table III following.

Table III

Factor Structure of Scales of the Teacher Characteristics Schedule with Extraction of Four and of Five Factors

Four Factors Extracted

Factor I		Factor II		Factor III		Factor IV	
Scale	Loading	Scale	Loading	Scale	Loading	Scale	Loading
TC	.85	Z	.94	Y	.66	V	.88
R	.80	VS	.77	AV	.54		
PSA	.71	TA	.47	(V	.07)		
TA	.48	PV	.34				
VS	.36	(V	.16)				
X	.26						
(V	-.23)						
Total Variance:	21%		24%		16%		9%

Five Factors Extracted

Factor I		Factor II		Factor III		Factor IV		Factor V	
Scale	Loading	Scale	Loading	Scale	Loading	Scale	Loading	Scale	Loading
TC	.83	Z	.93	Y	.52	V	.90	AV	.82
R	.80	VS	.73	(V	.14)			Y	.32
PSA	.61	TA	.49					(V	-.07)
TA	.51	PV	.27						
VS	.42	(V	.14)						
X	.26								
(V	-.12)								
Total Variance:	19%		23%		14%		18%		9%

The first factor is readily interpretable, but difficult to give a simple rubric. Perhaps it may be referred to as a factor describing the "teaching committed" teacher, who is friendly and relates well with children and school personnel, who is comfortable in personal-social relationships, and who enjoys intellectual and cultural activities teachers often participate in.

The second factor is equally interpretable and appears to describe the "stimulating, motivating" teacher, who possesses considerable originality and verbal-semantic facility, who enjoys participation in activities teachers often engage in, and who is somewhat flexible or permissive with regard to educational "philosophy." Such a teacher might be expected to be "creative" and to encourage creativity in pupils.

The third factor, also relatively easy to understand, describes the "organized, businesslike, task-oriented" teacher.

The factor, which emerges as V as its sole component, relates to "validity of responses" and probably is of less value in describing teacher characteristics and of greater usefulness as a "control" factor. A low V score would make one cautious about interpreting the other factors particularly Factor I, (Factors II and III show low positive, essentially zero order, loadings of V; and this would suggest that for the sample of teachers as a group Factors II and III were not greatly affected by the V scores.

The foregoing data on intercorrelations and factor analyses of the scales are of interest in the sense of parsimonious description. However, since the first order factor analysis that led to the

selection of the 11 scales and scoring keys provides more specific description, scores on all 11 scales will be employed in the descriptions of different teacher groups in the following section.

Similarities and Differences on Teacher Characteristics Scales of Sub-Groups of a Sample of Hawaii Teachers

Strictly speaking the noun culture, as applied to people, implies characteristic features of values, beliefs, practices, and mannerisms, that have been acquired by formal and informal intellectual, ethical, and aesthetic training and which often lead to characteristic behavioral and physical products. Thus one national culture, or racial culture, or socio-economic culture may be characterized by features different from those characterizing another culture. Tribes, clans, families, societies, clubs, political parties, "action groups," professional groups, etc. could also properly be called cultures, or subcultures. It is admittedly stretching the strict definition to refer to male and female groups of teachers, or to teachers of grades 1-6 and teachers of grades 10-12 as subcultures. They form "classes" or selected subsamples of teachers in general, but in this report liberty is taken with the definition of culture and they are referred to as subcultures.

The other classification employed, which permits a responding teacher to refer to national and/or racial lineage and specify membership in such a subgroup as Japanese American, Chinese American, Caucasian (or American of believed lineage traceable to a Western European nation), and Hawaiian American (i.e., of at least partial Polynesian Hawaiian lineage) certainly is within the compass of the

strict definition and quite properly may be referred to as subcultures of teachers.

In any event, the following comments will relate to descriptions of: male and female teachers; elementary, intermediate, and high school teachers, and Japanese American, Chinese American, Caucasian American, and Hawaiian American teachers.

In analyzing the data the small numbers of certain groups (e.g., male teachers = 75, Chinese American = 75, Hawaiian American = 30, teachers of intermediate grades 7, 8, 9 = 75) made complex analyses of variance difficult to interpret because of small, and often no, numbers in some cells and the questionable interpretation of high order interactions when such occur. Three separate ANOVA's, two two-way analyses and one three-way analysis, were carried out for each of the 11 scales of the Teacher Characteristics Schedule: (a) 2 by 4 analysis (1) male, female, (2) Japanese American, Caucasian, Chinese American, Hawaiian American; (b) a 2 by 3 analysis (1) male, female, (2) elementary grades taught, intermediate grades taught, high school grades taught; and (c) a 3 by 2 by 2 analysis for (1) elementary, intermediate, secondary teachers, (2) Japanese American, Caucasian (the two largest "lineage" groups available), and (3) male, female. A number of main effects, but only a few interaction effects were statistically significant.

The many ANOVA tables will be omitted and descriptions of findings will be presented verbally. Findings will be reported separately for each of the 11 scales of the Schedule.

Scale X: Considerate, Sympathetic, "Warm" Teacher Behavior.

Male-Female Data. Although the mean score of women was very slightly higher than that of men, there was no statistically significant difference in the mean scores of these groups re this scale.

Grade Level Data. When all lineage groups were included in the analysis, the mean score of elementary teachers was higher than the means of intermediate and high school teachers (F significant at .05 level), high school teachers yielding the lowest mean. (These data are consistent with the 1948-54 Study data.)

Lineage, or Ethnic Group Data. The lineage group means were all very similar; there were no significant differences re this scale.

Interactions. There were no significant interactions when combinations of sex, grade level, and lineage groups were analyzed.

Scale Y: Businesslike, Thorough, Task-Oriented Teacher Behavior.

Male-Female Data. Although the mean score of women teachers was about one score point higher than that of the men, the difference was too small to approach statistical significance (F ratio of 1.45, with P of .22) re this scale.

Grade Level Data. Both when all lineage groups were included and when only Japanese American and Caucasian groups were analyzed, high school teachers attained the highest mean score and elementary teachers the lowest mean, with grades 7, 8, 9 teacher mean intermediate. The difference was statistically significant when only the Japanese American and Caucasian groups were considered (F significant at .04 level), but not when all lineage groups were considered (F significant at only .08 level).

Lineage, or Ethnic Group Data. The Caucasian teachers attained the lowest mean of all groups on this scale, with other lineage groups yielding about the same mean scores (F significant at .03 level when all lineage groups were included; F significant at .001 level when only Japanese American and Caucasian teachers were included with the Japanese American mean some 4 score points higher than the Caucasian mean.)

Interactions. One statistically significant interaction was revealed: Japanese American males showed the highest mean score, women of the same group yielded the next highest mean, Caucasian women were next in order, and Caucasian males much lower re the Y scale (F significant at .04 level).

Scale Z: Stimulating, Motivating, Imaginative Teacher Behavior.

Male-Female Data. Although the women teachers consistently attained somewhat higher mean scores than men teachers in all analyses, there were no statistically significant differences.

Grade Level Data. High school teachers, elementary teachers, and grades: 7, 8, 9 teachers revealed differences in mean score attained re Z, with high school teachers highest and intermediate grade teachers lowest. Although the order notes was maintained the differences did not attain statistical significance when only Japanese American and Caucasian teachers were considered (F = 2.06, P = .13); the differences were statistically significant when all lineage groups were included (F significant at .02 level).

Lineage, or Ethnic Group Data. On this scale, the group of Caucasian teachers attained the higher mean score, substantially

greater than the other lineage groups included (F significant at .003 and .001 levels). (The other groups were within 1 score point of one another, the order of the means from slightly higher to slightly lower being Chinese American, Japanese American, and Hawaiian American, but no significance can be attached to the small differences.)

Interactions. One statistically significant interaction was revealed in the ANOVA that included only Japanese American and Caucasians (F significant at .04 level), there being a spread of over 8 score points between the higher mean of Caucasian males and the mean of Japanese American males.

Scale R: Favorable Attitudes toward Pupils, School Personnel, Parents.

Male-Female Data. Although women teachers attained higher mean scores than men teachers, the differences re this scale were not statistically significant.

Grade Level Data. Although elementary teachers attained highest mean scores and grades 7, 8, 9 teachers lowest mean scores, no set of differences approached statistical significance.

Lineage, or Ethnic Group Data. Japanese American teachers attained the highest mean scores re this scale and Caucasian teachers the lowest. Although the difference was not statistically significant when all four lineage groups were considered (F = 1.92, P = .12), the difference favoring the Japanese American teachers over Caucasian teachers was significant (F significant at .01 level) when only the two groups were considered.

Interactions. There were no significant interactions among the variable when classification by sex, grade taught, or lineage were analyzed re this scale.

Scale AV: Educational Views Approving Teacher-Directed, Academic-Centered School Activities.

Male-Female Data. The mean scores of the men and women teachers are almost identical re this scale; there were no differences that even approached significance.

Grade Level Data. There were no significant differences with regard to grade level taught (intermediate grade teachers attained a mean score about 1 score point higher than high school teachers, and the high school mean was about 1 score point higher than the lowest scoring elementary teacher group, but significance was not approached (e.g., P's of .19 and .16).

Lineage, or Ethnic Group Data. Mean scores of the lineage groups were almost identical, there were no differences re this scale.

Interactions. There were no interactions that were statistically significant (the closest approach being an F significant at the .07 level, showing highest mean score for Caucasian women teachers, next highest for Japanese American men, lowest for Caucasian men, and next lowest for Japanese women. Thus, there is some slight evidence for Caucasian women and Japanese American men to be espouse an academic-centered "philosophy" of education than for Japanese American women and Caucasian men.)

Scale PV: Non-directive, Permissive, Child-Centered Views about School Activities.

Male-Female Data. The mean scores of men and women teachers were very much alike, no differences that approach statistical significance.

Grade Level Data. Elementary teachers attained the highest mean score on this scale, with grades 7, 8, 9 and high school teachers attaining about the same mean. The difference was significant (F significant at the .01 level when all lineage groups included and F significant at .03 level when only Japanese American and Caucasian lineage groups considered.)

Lineage, or Ethnic Group Data. The mean scores of the several lineage groups were very similar re this scale; there were no differences that even approached significance.

Interactions. One interaction effect was statistically significant. In the Japanese American and Caucasian ANOVA, Caucasian male teachers attained the highest mean score, followed by Japanese American females and Caucasian females, with Japanese American males yielding the lowest mean. The F ratio was significant at the .03 level of significance.

Scale VS: Verbal-Semantic Comprehension in Language in which Instruction is conducted.

Male-Female Data. As had been found in the Teacher Characteristics Study, 1948-54, women teachers consistently attained a higher mean score than did the men on this scale. The F ratios were significant at the .002 level in two of the ANOVA's and at the .01 level in the analysis involving only the Japanese American and Caucasian lineage groups.

Grade Level Data. High school teachers, elementary teachers, and grades 7, 8, 9 teachers attained mean scores, from highest to lowest in order named. The differences were statistically different (F value significant at the .03 level) when all lineage groups were considered, but not when only the Japanese American and Caucasian teachers were included in the analysis (F = 2.01, P = .13).

Lineage, or Ethnic Group Data. The mean score of Caucasian teachers was higher than the means of other groups when four lineage groups were analyzed (F significant at .0002 level) and higher than the Japanese American lineage group when only the two groups were considered (F significant at .007 level).

Interactions. There were no significant interactions re VS; but it is of casual interest to note that the mean of women high school teachers was over 7 score points higher than the mean of men grade 7, 8, 9 teachers (F non-significant; P = .13).

Scale PSA: General Personal-Social Adjustment.

Male-Female Data. The mean score of men teachers was significantly higher than that of women teachers on this scale (F ratios significant at .004 and .001 levels).

Grade Level Data. Although the mean scores, in order from higher to lower, were attained by elementary, high school, and grade 7, 8, 9 teachers, no F ratio approached statistical significance.

Lineage, or Ethnic Group Data. There were no significant differences in mean scores of the several lineage groups.

Interactions. Only one significant interaction emerged from the analyses, Hawaiian American women teachers attaining the highest mean

score and women Japanese American teachers the lowest. (The mean of men Japanese American teachers was second highest, less than 1 score point below the Hawaiian women and more than 4 score points above the mean of Japanese American women teachers.) The F ratio was significant at the .03 probability level.

Scale TC: Commitment, or Dedication, to Teaching.

Male-Female Data. Mean scores of men and women teachers were very similar; no significant difference.

Grade Level Data. There were only very slight differences in mean scores of elementary, intermediate, and high school teachers; the means were similar and there was no significant difference.

Lineage, or Ethnic Group Data. Mean scores were essentially the same; no significant differences.

Interactions. There was no evidence of any significant interaction effects.

Scale TA: Reported Participation in Teaching-Related Activities (Intellectual, Cultural, Educational, Community Activities in which Teachers Generally are Expected to be Interested)

Male-Female Data. Although women teachers attained higher mean score than did men, the difference did not approach a probability level suggesting statistical significance.

Grade Level Data. The mean score of high school teachers was highest on this scale, followed in order by the means of grades 7, 8, 9 and then elementary teachers. The differences were significant at the probability level of .02 in the analysis that included all four lineage

groups; but the F ratio did not approach statistical significance (P = .21) when only the two largest groups, Japanese American and Caucasian, were subjected to ANOVA.

Lineage, or Ethnic Group Data. When all four lineage groups were included in the ANOVA, the mean scores of the native Hawaiian teachers was highest, followed in order by Caucasian, Chinese American, and Japanese American (F significant at the .03 probability level). When only the two larger groups were analyzed the mean score of Caucasian teachers exceeded that of Japanese American teachers (F significant at .01 level).

Interactions. There were no significant interactions of variables in evidence.

*Scale V: Validity of Response.

Male-Female Data. The mean scores of men and women were essentially the same; no significant differences.

Grade Level Data. The mean scores of high school teachers, intermediate teachers, and elementary teachers were essentially the same (with very small differences in order named); there were no significant differences.

Lineage, or Ethnic Group Data. The mean scores of Japanese American, Caucasian, and Chinese American teachers were identical to the first decimal, with the Hawaiian teachers yielding a somewhat lower score suggesting possible greater tendency to give socially desirable responses (F significant at the .002 probability level).

Interactions. There was no evidence of any significant interaction effects.

*(It should be recalled that the V scale was developed primarily as an adjunct scale to identify respondents who might be unusually susceptible to a tendency to give socially acceptable responses that might interfere with interpretation of responses scored on the preceding 10 scales.)

The obtained similarities and differences on the scales of the Teacher Characteristics Schedule are presented as the results yielded by the sample of teachers in schools in Oahu, Hawaii who were willing to complete the materials (i.e., respond to the items of the Teacher Characteristics Schedule). As noted earlier, the extent to which samples and responses made by samples are representative of the populations to which they belong can only be a matter of conjecture. Behavioral data must always be based upon (a) ability and (b) willingness to participate. It cannot be known how persons who did not participate would have responded, and the extent to which their behavior/responses would have been like or unlike the data obtained from those who did participate.

It may also be noted that no attempt is made in this report to try to "explain" similarities or differences. Many hypotheses offering possible explanations may suggest themselves to a reader. But evidence of antecedent-consequent relationships is not available.

Finally, it must be recalled that the scales of the Teacher Characteristics Schedule make no pretense of trying to define effective teachers. The scales simply describe certain characteristics of teachers of the current day as those characteristics emerge from analyses of teachers' reports of what they do, what they prefer, how they think

they would act or how they think other teachers would act under specified circumstances, what opinions and what values they agree or disagree with, etc.

With regard to "effective teaching" the same point of view was adopted as in the original Teacher Characteristics Study, i.e., that what is referred to as effective teaching varies so greatly from one community to another, or even one teacher education program to another, that efforts to determine "universals" that relate to teacher effectiveness should be viewed with great caution. The point of view adopted here is simply that the Teacher Characteristics Schedule provides estimates of some of the dimensions of behavioral and attitudinal responses of teachers that relate to objectives sometimes adopted by teacher education programs and by schools--objectives that persons belonging to one or another group may associate with effective teaching. If a teacher education program espouses objectives that place a premium upon pupil-centered viewpoints, or warm, sympathizing teacher behavior, some of the Schedule scales provide estimates of such characteristics. If another teaching program places emphasis upon an academic-centered set of educational viewpoints, upon task-oriented teaching behavior, etc., some of the scales tap these areas.

There is far from complete agreement among communities, as well as among teacher education programs, regarding just what the individuals concerned want teachers to be like. As long as diverse opinions exist, the best that can be done in determining whether a teacher education program (or the teaching objectives of a school) may be achieving what is intended be achieved, is to get the program planners to spell-out

their objectives as behaviorally as possible and then develop research designs that will provide information about the extent to which the specified program is nurturing teacher characteristics that relate to the chosen objectives. A program is effective to the extent it may be achieving its objectives in producing teachers with characteristics the program was planned to produce.

Some Methodological Considerations in the Conduct of Investigations that Attempt to Describe Similarities and Differences Across Cultural Groups or other Distinguishable Samples of Persons

In this section, the second objective of the paper (in keeping with the theme of the XVIIth International Congress of Applied Psychology, "Looking Ahead After Half a Century of Applied Psychology,") attention will be turned to some of the awesome problems that are faced in attempting valid cross-national and cross-cultural (cross sample) descriptions of similarities and differences between groups of persons with respect to personality characteristics.

There is no need to labor the steady and rapidly increasing importance of understanding personality dimensions of persons affiliated with different cultures and their similarities and their differences. This is particularly true as increased communication and transportation facilities contriubte to shrinking of the social-psychological world in which man lives and to growth of individual and group contacts and interactions among peoples that were once considered disparate and to constitute relatively self-contained and self-consistent groups.

Space will not permit reference to many of the very large number of variables it is necessary to consider in comparing and drawing inferences about similarities and differences in cross-cultural research. Only some of the major classes of variables that must be taken into account are noted here. For convenience, these are first separated into two major classes, viewed as (1) those variables that may be thought of as manifest variables--simply those effects, or behaviors, that are readily

observed and distinguished, and (2) those variables that may be described as latent, or underlying psychological variables, which influence overt behavior but which often are not readily observable.

Some Manifest Variables

Within the major category of manifest variables, (a) "structural language" variables concerned with symbols employed, combinations of symbols representing objects and processes, syntax, etc. are identifiable and very clearly must be dealt with the cross-cultural study. When words employed in different languages have common roots the problem of translation, and back-translation, often is not too difficult to overcome; unfortunately for cross-cultural research many verbal expressions evade direct and straight-forward translation from one language to another and are either unique to a particular language or vary in meaning of translatable forms across different languages; (b) national and racial characteristics, mannerisms, and practices (including political, economic, religious, etc.) also often represent reasonably easily identified variables (sometimes reflected to some degree by language forms) that might be similarly classified under the rubric of manifest variables. Such variables include readily recognized and operationally definable traditions, mores, value systems, procedural practices, etc. that differ from culture to culture or group to group. Like language, these variables often pose major problems for researchers who attempt to determine common bases for describing similarities and differences in personality characteristics of different cultural groups. Another kind of manifest variable is represented by (c) characteristic attributes or distinguishable features that define sub-classes or

subcultures (e.g., occupations engaged-in defined subcultures; in the case of teachers, as members of an occupational subculture, still more specific distinguishable subcultures may be identified by age, experience, grade level or subject-matter taught, sex, geographic area within a particular nation or culture, etc.). In comparing major cultures, these subcultural variables are important concerns both because of their significance as separate variables worthy of consideration as dependent variables and also as conditions or independent variables to be taken into account in sampling for the comparison of major cultures of which they are components.

The foregoing note of some major classes of manifest variables is suggestive rather than exhaustive.

Some Latent Variables

The second major grouping of variables was referred to as latent variables--the less readily recognized variables, often elusive and overlooked, yet representing extremely potent effects and sources of variation in behavior when one seeks to describe similarities and differences across groups. Such variables present particularly difficult problems for the investigator. The variables referred to here as latent variables often involve relativity of meanings, mores, values, etc., in different cultural contexts. In this category could be included (a) semantic variables that plague the linguist--variations in connotation or signification or meaning of terms and expressions and actions---verbal or non-verbal expression that often deceptively appear to be directly translatable but which have one meaning within a given culture or subculture but different meanings from one culture to

another. Studies of the Whorfian hypothesis illustrate one aspect of this problem. Also classifiable as latent variables are (b) the sizeable array of characteristics that relate to the representativeness of the respondent or experimental subject as an individual typifying his nation or cultural group in comparisons made with members of other national or cultural groups. Of course, sampling problems enter into the picture here, prominent among which is the determination of the relevant variables to be taken into account in sampling, and their identification for sampling purposes. Other contaminating biases of this nature are difficult to determine and equate; e.g., inevitably it seems cross-cultural personality research is faced with (i) respondent biases relating to "reservation" or "caution" in verbal response and/or overt behavior (as contrasted with "openness" and "frankness") when comparisons with other groups are known to be involved, (ii) with respondent concern about what he or she perceives as invasion of the researcher upon personal behavior of the individual, and (iii) with other familiar respondent biases or response sets that may vary from one group to another and may invalidate responses or lead to non-response. In a somewhat similar context are (c) "researcher" or investigator biases that may confound cross-cultural studies. Variables of this sort involve the quality and extent of participation on the part of "collaborating" investigators in different nations or cultures: sometimes because of attitudes toward practices involved in the role of "investigator" in a particular culture; or because of lack of assurance on the part of a collaborating investigator that he really "belongs to the team" and actually shares participation in decisions and credits; or because of other similar

conditions that bear upon maintenance of comparable conditions of data gathering in the nations or cultures being compared.

Some Methodological and Procedural Considerations

Thus far, reference has been made only to some of the variables that more readily come to mind as considerations cross-cultural research must take into account. Nothing yet has been said of methodology for attempting to equate, balance out, partial out, or otherwise control relevant variables in order to make possible the description of similarities and differences in personality dimensions across nations or cultures.

Such methodology poses a major stumbling block. Applicable designs are difficult to conceive; and if a viable rationale strategy is formulated it is often difficult and costly, in time and resources, to carry through.

Oversimplifying the problem, there are certain resemblances in the efforts of cross-cultural research to establish equivalencies of cultural content to the procedures of psychometrics for establishing equivalence or comparability of different forms of a cognitive test or personal inventory. In the psychometric situation if two forms of a test that are (i) constructed to be similar (assumed or hypothesized to cover similar content) in item content (ii) are administered to the same population, (iii) are both found to meet satisfactory standards of reliability, (iv) are both found to yield approximately the same means and variances, (v) ideally (but usually not demanded), are found to yield similar matrices of item intercorrelations, and (vi) are found to meet agreed-upon criteria of validity, the forms are accepted

as comparable. And when a single test or inventory is administered to two populations if (i) the item content can be assumed to be equally applicable, if (ii) the test is satisfactorily reliable in each population, and if, (iii) when similar procedures for judging validity are applied the test satisfactorily meets the agreed-upon validity criteria in each population, then it may be assumed the two populations can be compared with respect ot the psychological construct the test is intended to reflect. Utilizing tests that have been thus constructed, the performance of students in School A may be compared with the performance of School B students.

In cross-cultural research, however, one seldom can start with a great deal of prior advance information about similarity of content. Indeed, as noted earlier, it is recognized that similar appearing content may have dissimilar meanings in different cultures, and dissimilar appearing content may have similar meaning. Attempts to define and designate criteria for determining responses that contribute to a particular domain across populations differing in expression of "manifest" and "latent" variables represent examples of this dilemma.

And how does one determine what behavior a response reflects or how valid a single response, or a set of responses comprising a score, may be in one as compared with another culture? The crux of the question of cross-cultural equivalence or comparability seems to rest on the assumptions that can be made and procedures that can be employed relating to the concept of validity. "Face validation," "validation by assumption," and "content representativeness validation" must be ruled out.

The difficulties involved in determining behavior and/or response equivalence across cultures seem almost impossible to resolve; and these difficulties are multiplied for the behavioral scientist by the fact he is dealing with psychological constructs which seldom are invariant (with regard to meanings attached to any particular construct, e.g., persistence) within a given culture and construct invariance necessarily increases as one moves from one culture to another.

Some Possible Approaches

If there be procedures that are applicable to the determination of (i) the personality patterns that are discernible across different cultures and (ii) the validity of response content in reflecting personality dimensions in differing cultures, they would seem to be those of that form of "construct validation" sometimes referred to as "instrinsic validation" or "factorial validation," i.e., validity determination by correlation and factor analysis. Such an analysis attempts to establish meanings from the contexts in which responses occur--a very necessary procedure for understanding of the nature of psychological constructs, for determining the approximate equivalency of constructs, and for estimating the equivalency of different response content that may reflect similar constructs across cultures and for determining differences among constructs operating in different cultures. In general, then, the procedures proposed involve large scale factor analyses applied to (a) judgments and/or (b) self-report inventory responses relating to preferred activities, typical behaviors, opinions, and the like.

Several slightly varying procedures will be suggested to provide a starting point for planning in this area, beginning with more rigorous and proceeding to less rigorous lines of attack. The suggested procedures are simply sets of phases or steps for cross-cultural research; the most perplexing of all problems, the techniques required to actually determine "response equivalence" and those required for "norms comparability" are left without solutions. All that is attempted is to outline possible approaches to programmatic cross-cultural research.

Program I. One relatively rigorous programmatic approach to the investigation of similarities and differences might follow such steps as those noted below:

(1) determination in each nation and/or culture (or subculture) of those teacher characteristics that are generally most highly valued in teachers in each particular culture. This would be essentially a "judgmental" process, perhaps employing a "critical incident approach" (or possibly employing a generalized "Q sort" procedure, or maybe some form of latent partition analysis---or possibly combinations of such approaches);

(2) development in each nation, culture, or subculture of operational definitions of those teacher characteristics that seem most significant in light of step 1;

(3) development in each nation or culture of inventory-type (self-report) items (e.g., responses relating to preferences, to activities engaged-in, to attitudes, etc.) that might be hypothesized to estimate the major patterns of teacher characteristics revealed in phases 1 and 2;

(4) incorporation of items from each nation or culture or subculture into a single inventory or "schedule" that could be administered in all nations or cultures involved;

(5) translation of the single overall inventory, insofar as possible, into each language involved (perhaps placing directly translatable items together and placing those other items that were not universally translatable together in another section);

(6) administration of the inventory to representative samples of teachers in each nation and/or cultures;

(7) factor analyses of the responses of teachers; (a) for pooled data for all participating nations or cultures, and (b) for data from each country separately;

(8) "factor matching" to determine possible (a) unique and (b) common factors across cultures or subgroups of the cultures;

(9) for "common" factors (a) development of suitable procedures (and this introduces a most difficult problem) that might yield indices of "response equivalence" for differing responses that contribute to apparently similar factors in different nations or cultures, and (b) development of suitable procedures (again, a difficult problem) for determining norms comparability from one culture to another with respect to such common-appearing factors as may exist.

Program II. A less acceptable procedure, but one that might involve substantially less time and effort than the program noted above, might be to employ a "starter" inventory developed for one culture (steps 1, 2, and 3 of Program I except that only one nation or culture would have been involved), then resorting to translation (including elimination

of materials that appeared to be semantically and/or linguistically not applicable to another, or several other, nations or cultures), back translation and then steps 7 through 9 of Program I.

Program III. Still lower in suitability is the much used development of an inventory for administration to a cross-section of subcultures, hopefully but seldom a stratified random sample, where language appears at least to be common among the subcultures, followed by administration and factor analyses in identifiable subcultures as well as a factor analysis of pool data (as suggested in steps 7 through 9 of Program I).

Program IV. At a still less desirable level is the development of an inventory in essentially the same manner the Teacher Characteristics Schedule was produced, with scales and scoring keys that are derived from factor analyses and item analyses. Following administration to a population of individuals, status and bibliographic responses are employed to sort identifiable subcultures or subgroups into separate classes and determination of similarities and differences among the groups is accomplished by statistical tests (F ratios and t test) of the null hypothesis, with subsequent inferences about similarities and differences among the subcultures. (This, of course, was the procedure employed with respect to the sex, grade level taught, and ethnic lineage of the teachers reported in the first section of this paper.)

A Proposal for Action

The third objective stated for this paper follows closely upon both the exploratory investigation accomplished in Hawaii and the preceding comments on methodology. It was hoped that a "special

interest group" of members of this Congress, together with other concerned educators and applied psychologists, might establish a preliminary arrangement for correspondence and a possible future meeting that might lead to planning for international/intercultural investigations with respect to the personal characteristics (i.e., personal/social dimensions) of a selected subcultural group (i.e., school teachers). Following substantial preliminary planning and agreement upon procedures, such a project would require, first, research within each participating nation or culture (similar from one country to another with respect to general procedures) to identify reliable and valid "within culture" variables of prominence and provide basis for assessment of such variables; second, merging of the results of the first phase and development of procedures and instruments that would permit comparison of common dimensions and determination of cultural uniquenesses; third, agreement upon a design for the data collection and analysis phase of the cross-cultural research; and fourth, collection and analyses of data and subsequent documentation.

Such a study would, of course, only scratch the surface and very possibly might raise many more questions about methodology and content than are currently answerable, but it would undoubtedly provide both hypotheses and encouragement for future researchers in seeking the goal of "man's better understanding of man."

As a footnote, subsequent to the meeting of the Congress, it may be added that prospects at present appear somewhat dim. Some interest by members of the Congress as well as others has been shown. However, almost any undertaking would require funding that the nations represented

and schools of those nations are not prepared to provide. Until at least minimal funding to permit preliminary conferences and at least some promise of more substantial funding for conduct of the investigations becomes possible it does not appear that such a project can be undertaken on a programmatic basis which might follow steps similar to those noted under Program I under the "methodology" section of this paper. It is possible that less rigorous programs may be capable of being carried out. The writer would be pleased to enter into correspondence and potential collaboration with other educators and applied psychologists with similar interests.

APPENDIX A

THE TEACHER CHARACTERISTICS STUDY, 1948-1954
and its
TEACHER CHARACTERISTICS SCHEDULE

The Teacher Characteristics Study.

The Teacher Characteristics Study was sponsored by the American Council on Education and generously supported by The Grant Foundation. During the six years of the Study, approximately 100 separate, but related, projects were carried out and over 6,000 teachers in 1,700 schools and 450 school systems participated in various phases of the research.

Some of the basic studies involved extensive classroom observation (by trained observers) of teachers, with the purpose of discovering significant patterns of teacher behavior.

Other activities of the project had to do with the development of instruments (self-report inventories) for the estimation of different levels of specified patterns of (a) classroom behavior, (b) attitudes and educational viewpoints, (c) verbal semantic understanding in language in which teaching was conducted, and (d) social/personal adjustment.

Still other investigations were concerned with the description of defined groups of teachers (e.g., elementary teachers and secondary teachers, married and unmarried teachers, etc.) from the standpoint of their observable characteristics.

Basically, the Teacher Characteristics Study had three major purposes:

(1) to analyze and describe patterns of teacher classroom behavior and the manifestations of certain value systems and cognitive and personal-social traits of teachers;

(2) to isolate and combine into scales significant correlates (provided by responses to self-report inventories concerned with the teacher's preferences, experiences, self-appraisals, judgments, and the like) of some major dimensions of teacher behavior; and

(3) to describe American teachers (in terms of the teacher characteristics revealed by the Study) when they had been classified according to a number of conditions.

Pursuance of these objectives involved: development of techniques for the reliable assessment of classroom behavior; determination of major patterns of teacher behavior; development of inventory-type instruments made up of materials hypothetically related to teacher classroom behavior dimensions and other personal and social characteristics

of teachers; the empirical derivation of scoring keys for such instruments in light of response-criterion correlations; and finally, description of defined groups of teachers.

Teacher Effectiveness and the Teacher Characteristics Study.

Most educators, and many parents, have (each to his own mind) some idea of what constitutes effective teaching. These conceptualizations, however, often are vague and removed from specific observable behaviors of teachers. Frequently such ideas are highly individualized, with very little agreement existing among different persons.

Disagreement with respect to the description of teacher effectiveness is to be expected. It cannot be entirely avoided; because competent teaching is a relative matter. A person's concept of a "good" teacher depends, first, on that person's acculturation, his past experience, the value attitudes he has come to accept, etc., and, second, on the aspect of teaching that may be foremost in his consideration at a given time.

Pupil F, therefore, may differ widely from pupil G in his concept of the essential attributes of an effective teacher. If pupil F is outstandingly capable, academically minded, well adjusted, and independent, he may value most the teacher who is serious, rigorously academic, and perhaps relatively impersonal. If pupil G, on the other hand, is more sensitive and requires considerable succorance, he may find the teacher just described not at all to his liking. In the mind of pupil G, the better teacher may very well be one who is somewhat less exacting from an academic standpoint, but who is characteristically sympathetic and understanding.

Answers to the question, "What is an effective teacher like?" also vary with the particular kind of teacher one chooses to consider. It does not seem unreasonable to hypothesize that, even if it were possible to agree upon a generalized definition of effective teaching which would be acceptable to a number of different cultures, and even if our thinking might be objectified to the point where effective teaching could be described on a factual basis, "good" teachers of different grades or different subject matters still might vary considerably in personal and social characteristics and in various domains of classroom behavior.

The concept of competent teaching must, therefore, be considered to be relative to the social or cultural group in which the teacher operates (involving social values which frequently differ from person to person, community to community, culture to culture, and time to time), to the grade level and subject matter taught, and perhaps a number of other conditions. It is not surprising, then, to note the difficulties that have confronted those seeking to establish universal criteria of teacher effectiveness, the dearth of testable hypotheses produced in such research as has been undertaken, and a general lack of understanding of the characteristics of effective teachers.

But in addition to these considerations, and important in its own right as a deterrent to the study of teacher effectiveness, is the fact that there has been a lack of any clear knowledge of the patterns of behaviors that typify individuals who are employed as teachers. It seems probable that, without losing sight of the importance of trying to develop means for recognizing "good" teachers, attention might first more properly and profitably be directed at the identification and estimation of some of the major patterns of personal and social characteristics of teachers. This represented the point of departure for the Teacher Characteristics Study.

In the Teacher Characteristics Study, considerations of the effectiveness, or value, of particular teacher behaviors were to a large extent disregarded. Instead, attention was focused on the study of possible teacher-behavior dimensions, such dimensions being hypothesized to represent generalized trait continua. From this point of view, teacher-behavior variables are assumed to consist of clusters of relatively homogeneous (positively intercorrelated) behaviors, such component behaviors being of the nature of simple predicates, capable of operational definition.

Implied in this approach is the assumption that a teacher may be described in terms of a position on a particular behavior dimension, such description being within probability limits essentially factual and relating to observable manifestations of behavior or else to responses known to be correlated with some behavior pattern to a degree that may permit indirect estimation of the behavior.

Patterns of Classroom Behavior.

As a result of the direct observation and assessment of teacher classroom behavior, and subsequent statistical analyses of the measurement data, several interdependent patterns of teacher behavior were suggested. Three in particular appeared to stand out in separate factor analyses of elementary and secondary teachers:

T.C.S. Pattern X_o--understanding, friendly (humanistic?) vs. aloof, egocentric, restricted teacher behavior
T.C.S. Pattern Y_o--responsible, businesslike, task oriented vs. evading, unplanned, slipshod teacher behavior
T.C.S. Pattern Z_o--stimulating, imaginative vs. dull, routine teacher behavior

Pattern scores X_o, Y_o, and Z_o, were derived from analyses of trained observers' estimates of teacher behaviors in the classroom. The scores appeared to possess sufficient reliability to permit comparisons of teacher groups with respect ot these patterns and, also, to justify their use for criterion purposes in attempting to identify inventory responses that might be used to describe teacher classroom behavior.

Among elementary school teachers, patterns X_o, Y_o, and Z_o were highly intercorrelated and each also seemed to be highly correlated with pupil behavior in the teachers' classes. Among secondary school teachers, the intercorrelations of the three patterns were lower, the correlation between patterns X_o (friendly) and Y_o (organized) being of a very low order. The teacher classroom-behavior patterns and pupil behavior were much less highly correlated among secondary teachers as compared with elementary teachers.

Elementary and secondary teachers, as major groups, differed hardly at all with respect to mean (average) assessments on patterns X_o, Y_o, and Z_o. However, Grade 5-6 women teachers, represented by a relatively small sample, were assessed somewhat higher on the several classroom behavior patterns (particularly on Y_o) than teachers of other elementary grades. Among secondary school groups, Social Studies teachers received the highest mean assessment on pattern X_o (friendly behavior) and women Mathematics teachers (with women Social Studies teachers not far behind) on pattern Y_o (business-like behavior). Teachers over 55 years of age received distinctly lower mean assessments on pattern X_o (friendly), and also slightly lower with regard to pattern Z_o (stimulating), than younger teacher groups. Among elementary teachers, the mean assessments on the classroom behavior patterns X_o, Y_o, and Z_o were slightly but insignificantly higher for married, as compared with single, teachers. Among secondary Mathematics-Science teachers, single teachers received higher mean assessments than did those who were married. With respect to English-Social Studies teachers, single teachers were assessed higher than married teachers on pattern Y_o, but slightly lower on patterns X_o and Z_o. In general, differences between teacher groups compared on the observed classroom behavior patterns X_o, Y_o, and Z_o were not pronounced. However, it is of interest to note that scores on the Teacher Characteristics Schedule (to be described shortly), based on keys (X_{co}, Y_{co}, and Z_{co}) derived to predict these classroom behavior patterns, frequently distinguished different teacher groups more sharply and with greater assurance than did the X_o, Y_o, and Z_o observation data.

Patterns of Values, Verbal-Semantic Facility, and Social/Personal Adjustment.

Inevitably, the Teacher Characteristics Study sought other evidences of teacher behavior in addition to those provided by observers' assessments of overt classroom behavior.

To extend the understanding of conative and cognitive aspects of teacher behavior, and to permit the more complete investigation of relationships between teacher characteristics and specified conditions of teaching, the Study undertook a number of researches directed at analyses of teachers' attitudes, their educational viewpoints, their verbal-semantic facility, and their personal-social adjustment, and attempted to develop direct-inquiry instruments for estimating a teacher's status relative to such behavior domains.

In one set of studies, a number of opinionnaires relating to teachers' attitudes toward groups of persons encountered in the school were developed, and the organization of teacher attitudes was studied through factor analysis. In keeping with the results of the factor analyses, the Study centered its attention chiefly on the attitudes of teachers toward pupils, their attitudes toward administrators, and their attitudes toward fellow teachers and nonadministrative personnel.

The educational viewpoints of teachers with respect to curricular organization and scope, pupil participation and class planning, academic achievement standards, etc. also were investigated (separately for elementary and secondary teachers) through the employment of direct-inquiry type of items and factor analysis of the intercorrelations among responses. Several minor patterns of viewpoints emerged but there seemed to be justification for considering teachers' educational beliefs from the standpoint of a single continuum, oversimplified perhaps by its designation as a "traditional-permissive" dimension.

To obtain estimates of the verbal semantic-facility of teachers, items were constructed, experimentally administered, and the responses analyzed, the procedure culminating in the selection of a small number of highly discriminating items comprising a criterion scale relative to verbal-semantic facility. In a similar way, materials were prepared and analyzed to obtain items for providing estimates of the personal-social adjustment of teachers. And, to aid in the detection of systematic tendency to give socially desirable responses, when a set of items intended to measure probable validity-of-response also was assembled.

Various studies and comparisons of the attitudes, educational viewpoints, verbal-semantic facility, and personal-social adjustment of teachers were undertaken in the course of the development of such measuring devices as those noted above.

The Teacher Characteristics Schedule: An Inventory for Indirect Estimation.

In the interest of providing more readily obtainable estimates of teacher classroom behaviors, and also estimates of teacher attitudes, viewpoints, verbal-semantic facility, and personal-social adjustment which might be less susceptible to the response sets, efforts of the Teahcer Characteristics Study were directed at the derivation of "correlates" scoring keys applicable to the items of the Teacher Characteristics Schedule.

The Teacher Characteristics Schedule was an omnibus self-report inventory based upon some twenty-five originally separate instruments. In its final 1952-54 forms, it consisted of 350 multiple-choice and check-list items relating to personal preferences, self-judgments, activities frequently engaged in, biographical data, and the like.

(Fifty items provided control and group-identification information plus direct-inquiry estimates of verbal semantic facility, social/personal adjustments, and validity of response.)

Employing as criteria (a) observers' assessments of teacher classroom behaviors X_o, Y_o, and Z_o, and (b) scores on the direct response (criterion) scales relative to teacher attitudes, viewpoints, verbal facility, and personal-social adjustment, hundreds of response analyses were carried out (thanks to SWAC, our first high speed computer at UCLA). Response-criterion correlations were obtained for each response to each item of the Teacher Characteristics Schedule under a variety of conditions. "Correlates scoring keys," employing responses associated with the criterion behaviors as "signs" or "symptoms" of behaviors, were derived for a large number of teacher groups. The most generally applicable sets of scoring keys (and those most frequently used in other phases of the Study's research) were the all-Elementary Teacher keys, the all-Secondary Teacher keys, and the combined Elementary-Secondary teacher keys.

Reliability data for the correlates scoring keys and various kinds of validity data, relating particularly to the friendly (X_{co}), business-like (Y_{co}), and stimulating (Z_{co}) keys, were obtained. Generally speaking, the reliability coefficients fell between .7 and .9, and the validity coefficients were of varying magnitude depending upon the type of validity investigated, the particular behavior estimated, and the teacher group from which the key was derived and to which it might reasonably be applied. Concurrent validity coefficients for correlates scores on classroom behavior patterns X_o, Y_o, and Z_o typically were between .2 and .4; long-term predictive validity coefficients were positive, but generally lower.

Three separate Teacher Characteristics Schedule booklets were developed and employed in the original Study--one for Elementary teachers, one for English-Social Studies teachers, and one for Mathematics-Science teachers. Some items were common to the three booklets; others were unique to a particular booklet. Use of the Teacher Characteristics Schedule made it possible to obtain estimates, from a teacher's responses, of each of ten behaviors and characteristics, (tagged, for convenience, by capital letters) X, Y, Z, R, R_1, Q, B, I, S, and V (the V estimates were concerned simply--and only incidentally--with susceptibility to socially acceptable responses.)

X_{co}* — Understanding, friendly (humanistic?) vs. aloof teacher behavior (estimated from Schedule correlates)

Y_{co} — Responsible, task-oriented vs. unplanned teacher behavior (estimated from Schedule correlates)

* The subscript $_{co}$ indicates that scores on this variable are based upon Schedule responses which are correlated with specified criterion scores.

Z_{co} Stimulating vs. dull teacher behavior (estimated from Schedule correlates)

R_{co} Favorable vs. unfavorable opinions held about pupils (estimated from Schedule correlates)

R_{1co} Favorable vs. unfavorable opinions held about democratic classroom procedures (estimated from Schedule correlates)

Q_{co} Favorable vs. unfavorable opinions held about administrative and other school personnel (estimated from Schedule correlates)

B_{co} Academic-centered, "traditional" vs. "permissive" educational viewpoints (estimated from Schedule correlates)

I_{co} Verbal/semantic facility in language in which teaching conducted (estimated from Schedule correlates with a homogeneous set of previously validated items)

S_{co} Social/personal adjustment (estimated from Schedule correlates with a homogeneous set of previously validated two-choice "typical response" items)

V_{co} Validity of Schedule Responses--or lack of susceptibility to socially acceptable responses--(estimated from Schedule correlates with a homogeneous set of previously validated items permitting choice of a "common" response vs. a "socially approved" response)